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10/737,050

12/15/2003

Yi He

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05/04/2005

AGILENT TECHNOLOGIES, INC.

Legal Department, DL 429

Intellectual Property Administration

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EXAMINER

LE, JOHN H

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/737,050

Applicant(s)

HE ET AL.

Examiner

John H. Le

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-13,17 and 20 is/are rejected.
- 7) ☒ Claim(s) 3-6,14-16,18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 2, 9, 10, and 15 are objected to because of the following informalities:

Claim 2, line 1, "I" and "Q" are unclear. I and Q require a definition.

Claim 9, line 6, "I" and "Q" are unclear. I and Q require a definition.

Claim 10, line 6, "I" and "Q" are unclear. I and Q require a definition.

Claim 15, line 3, "CCDF" is unclear. CCDF require a definition.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Hamilton et al. (US 2004/0024801 A1).

Regarding claim 1, Hamilton et al. disclose a system for generating a histogram of a plurality of power data values (Abstract), the system comprising: a processing apparatus receiving the plurality of power data values and converting the plurality of power data values to a plurality of floating-point numbers (e.g. Fig.2A, [0027]); and a memory including a plurality of histogram bins connected electronically to the

processing apparatus ([0043]), wherein the processing apparatus stores counts of the plurality of floating-point numbers ([0043]) using each floating-point number as an address for a corresponding histogram bin in the memory (e.g. Fig.1, [0004]-[0011]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al. (US 2004/0024801 A1) in view of Dent (USP 6,226,271).

Regarding claim 12, Hamilton et al. disclose a method for deriving a power complementary cumulative distribution function from a plurality of power data values ([0003]), comprising: a) receiving a power data value ([0003]); b) converting the power data value to a floating-point number (e.g. [0013]); c) reading a location in a memory using the floating-point number as an address for the location in memory (e.g. Fig.1, [0004]-[0011], [0043]).

Hamilton et al. fail to teach steps of: d) incrementing by one a count read from the location in memory; e) writing the incremented count to the location in memory; and f) repeating a through a until all of the power data values in the plurality of power data values have been received, converted, and accumulated in corresponding locations in memory; and g) generating a histogram of the plurality of floating-point numbers using the memory locations as histogram bins.

Dent teach steps of: d) incrementing by one a count read from the location in memory; e) writing the incremented count to the location in memory; and f) repeating a through a until all of the power data values in the plurality of power data values have been received, converted, and accumulated in corresponding locations in memory; and g) generating a histogram of the plurality of floating-point numbers using the memory locations as histogram bins (e.g. Figs.7A-7B, Col.12, line 34-Col.13, line 62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform steps of: d) incrementing by one a count read from the location in memory; e) writing the incremented count to the location in memory; and f) repeating a through a until all of the power data values in the plurality of power data values have been received, converted, and accumulated in corresponding locations in memory; and g) generating a histogram of the plurality of floating-point numbers using the memory locations as histogram bins as taught by Dents in a method for deriving a power complementary cumulative distribution function from a plurality of power data values of Hamilton et al. for the purpose of providing a method and system which calculates a received signal strength indication by efficiently adding and thereby averaging a large number of logarithmically represented signal strength values (Dent, Col.2, lines 30-34).

6. Claims 2 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al. (US 2004/0024801 A1) in view of Leffel (US 2005/0057303).

Regarding claim 8-11, Hamilton et al. teach an application specific integrated circuit receiving the digital immediate frequency signal, down-converting the immediate frequency signal to a baseband signal (e.g. [0042]), a microprocessor connected electronically to the field programmable gate array (e.g. [0042]), wherein the field programmable gate array and the microprocessor work cooperatively to convert the power data value to a floating-point number (e.g. Fig.2, [0042]- [0043]) and store counts of the plurality of floating-point numbers (e.g. [0043]) using each floating-point number as an address for a corresponding histogram bin in the memory (e.g. Fig.1, [0004]- [0011]).

Regarding claims 2 and 8-11, Hamilton et al. fail to teach the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values.

Leffel teaches the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values (e.g. Fig.2, [0027]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values as taught by Leffel in a method for deriving a power complementary cumulative distribution function from a plurality of power data values of Hamilton et al. for the purpose of providing a method and system for measuring power level and cumulative distribution function measurement (Leffel, [0097], [0123], [0124]).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al. (US 2004/0024801 A1) in view of Abercrombie et al. (USP 6,275,920).

Regarding claim 7, Hamilton et al. fail to teach a maximum count for the histogram bins is determined by the equation $(2^w - 1)$, where w represents a bit width of the memory.

Abercrombie et al. teach a maximum count for the histogram bins is determined by the equation $(2^w - 1)$, where w represents a bit width of the memory (e.g. 8 bits width, maximum count is 255, Col.109, lines 25-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform a maximum count for the histogram bins is determined by the equation $(2^w - 1)$ as taught by Abercrombie et al. in a method for deriving a power complementary cumulative distribution function from a plurality of power data values of Hamilton et al. for the purpose of providing a histogram operation (Abercrombie et al., Col.109, line 24).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al. (US 2004/0024801 A1) in view of Dent (USP 6,226,271) as applied to claim 12 above, and further in view of Leffel (US 2005/0057303).

Regarding claim 17, the combination of Hamilton et al. and Dent fail to teach the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values.

Leffel teaches the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values (e.g. Fig.2, [0027]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values as taught by Leffel in a method for deriving a power

complementary cumulative distribution function from a plurality of power data values of Hamilton et al. in view of Dent for the purpose of providing a method and system for measuring power level and cumulative distribution function measurement (Leffel, [0097], [0123], [0124]).

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al. (US 2004/0024801 A1) in view of Dent (USP 6,226,271) as applied to claim 12 above, and further in view of Abercrombie et al. (USP 6,275,920).

Regarding claim 20, the combination of Hamilton et al. and Dent fail to teach a maximum count for the histogram bins is determined by the equation $(2^w - 1)$, where w represents a bit width of the memory.

Abercrombie et al. teach a maximum count for the histogram bins is determined by the equation $(2^w - 1)$, where w represents a bit width of the memory (e.g. 8 bits width, maximum count is 255, Col.109, lines 25-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform a maximum count for the histogram bins is determined by the equation $(2^w - 1)$ as taught by Abercrombie et al. in a method for deriving a power complementary cumulative distribution function from a plurality of power data values of Hamilton et al. in view of Dent for the purpose of providing a histogram operation (Abercrombie et al., Col.109, line 24).

Allowable Subject Matter

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10. Claims 3-6, 14-16, 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In combination with other limitations of the claims, the cited prior arts fails to teach an exponent and a mantissa in the plurality of floating-point numbers are computed according to the equations:

$$\text{exponent} = 2^E - 1 - (\text{number of leading zeros in MS, up to } 2^E - 1)$$

$$\text{mantissa} = \text{MS}[(N - 2^E - 1 + \text{exp}) : (N - 2^E + \text{exp} - M)] \text{ for } \text{exp} > 0; \text{ or}$$

$$\text{mantissa} = \text{MS}[(N - 2^E) : (N - 2^E + 1 - M)] \text{ for } \text{exp} = 0$$

where E is the number of bits assigned to the exponent, M is the number of bits assigned to the mantissa, MS is a respective $(I^2 + Q^2)$ data value in the plurality of $(I^2 + Q^2)$ data values, and N is the number of bits assigned to the plurality of $(I^2 + Q^2)$ data values, as recited in claim(s) 3 and 18.

In combination with other limitations of the claims, the cited prior arts fails to teach calculating a complementary cumulative distribution function curve from the histogram comprises calculating an average power for the plurality of power data values according to the equation $\text{average power} = \sum (P_i * C_i) / \sum (C_i)$, for $i = 1$ to K, and K = number of bins, P_i is the power for the i th bin, and C_i is the count for the i th bin, as recited in claim(s) 14.

In combination with other limitations of the claims, the cited prior arts fails to teach an exponent and a mantissa in the plurality of floating-point numbers are computed according to the equations:

$$\text{exponent} = 2^E - 1 - (\text{number of leading zeros in MS, up to } 2^E - 1)$$

$$\text{mantissa} = \text{MS}[(N - 2^E - 1 + \text{exp}) : (N - 2^E + \text{exp} - M)] \text{ for } \text{exp} > 0; \text{ or}$$

$$\text{mantissa} = \text{MS}[(N - 2^E) : (N - 2^E + 1 - M)] \text{ for } \text{exp} = 0$$

where E is the number of bits assigned to the exponent, M is the number of bits assigned to the mantissa, MS is a respective $(I^2 + Q^2)$ data value in the plurality of $(I^2 + Q^2)$ data values, and N is the number of bits assigned to the plurality of $(I^2 + Q^2)$ data values, as recited in claim(s) 3 and 18.

Contact Information

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H Le whose telephone number is 571-272-2275.

The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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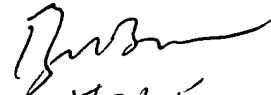
you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le

Patent Examiner-Group 2863

April 27, 2005

BRYAN BUI
PRIMARY EXAMINER



8/2/05